

COMPLETE LISTING OF ALL CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A method for annealing an organic film, comprising:
exposing the organic film to a vapor of a solvent for a period of time sufficient to render at least an outermost portion of the organic film insoluble in the solvent, wherein insolubility of the outermost portion results directly from vapor annealing without other assistance~~heat treating the film after exposure to the vapor.~~
2. (Original) The method of claim 1 wherein the organic film includes a small-molecule material, dye, pigment, pentacene or pentacene precursor, C₆₀ and/or derivatives thereof, PCBM or polymer.
3. (Original) The method of claim 2 wherein the organic film includes a polymer material.
4. (Original) The method of claim 3 wherein the polymer material is an insulating polymer.
5. (Original) The method of claim 4 wherein the insulating polymer is poly(ethylene terephthalate) (PET) and poly(ethylene 2,6-naphthalate).
6. (Original) The method of claim 3 wherein the polymer material is an electrically conducting or semiconducting polymer.
7. (Original) The method of claim 6 wherein the polymer material includes a material from the group of poly(phenylene) and derivatives thereof, poly(phenylene vinylene) and derivatives thereof (e.g., poly(2-methoxy-5-(2-ethyl-hexyloxy)-1,4-phenylene vinylene (MEH-PPV), poly(para-phenylene vinylene), (PPV)), PPV copolymers, poly(thiophene) and derivatives thereof (e.g., poly(3-octylthiophene-2,5,-diyl), regioregular, poly(3-octylthiophene-2,5,-diyl), regiorandom, poly(3-hexylthiophene) (P3HT), poly(3-hexylthiophene-2,5-diyl), regioregular, poly(3-hexylthiophene-2,5-diyl), regiorandom), poly(thienylenevinylene) and

derivatives thereof, and poly(isothianaphthene) and derivatives thereof, tetra-hydro-thiophene precursors and derivatives thereof, poly-phenylene-vinylene and derivatives organometallic polymers, polymers containing perylene units, poly(squaraines) and their derivatives, discotic liquid crystals polyfluorenes, polyfluorene copolymers, polyfluorene-based copolymers and blends, e.g. co-polymerized and/or blended with materials such as charge transporting (e.g. tri-phenyl-amines and derivatives) and/or light-absorbing compounds (e.g. fused thiophene rings and derivatives, generally hetero-atom ring compounds with or without substituents).

8. (Original) The method of claim 1 wherein the solvent is an organic solvent.

9. (Original) The method of claim 8 wherein the organic solvent is selected from the group of acetone, chloroform, benzene, cyclohexane, dichloromethane, ethanol, diethyl ether, ethyl acetate, hexane, methanol, toluene, xylene, mixtures of two or more of these, and derivatives of one or more of these.

10. (Previously Amended) A method for forming an organic film, comprising:
placing a solution containing an organic material and a first solvent on a substrate;
evaporating the first solvent from the solution leaving an organic film on the substrate;
annealing the organic film by exposing it to a vapor of a second solvent for a period of time sufficient to render at least an outermost portion of the organic film insoluble in the first solvent, wherein the first solvent and second solvent are the same solvent.

11. (Original) The method of claim 10 wherein the organic material includes a pigment, small-molecule material, dye, pentacene or pentacene precursor, C₆₀ and/or derivatives thereof, PCBM or polymer.

12. (Original) The method of claim 11 wherein the organic material is an insulating polymer.

13. (Original) The method of claim 12 wherein the insulating polymer is poly(ethylene terephthalate) (PET) and poly(ethylene 2,6-naphthalate).

14. (Original) The method of claim 10 wherein the organic material is a conducting polymer from the group of poly(phenylene) and derivatives thereof, poly(phenylene vinylene) and derivatives thereof (e.g., poly(2-methoxy-5-(2-ethyl-hexyloxy)-1,4-phenylene vinylene (MEH-PPV), poly(para-phenylene vinylene), (PPV)), PPV copolymers, poly(thiophene) and derivatives thereof (e.g., poly(3-octylthiophene-2,5,-diyl), regioregular, poly(3-octylthiophene-2,5,-diyl), regiorandom, poly(3-hexylthiophene) (P3HT), poly(3-hexylthiophene-2,5,-diyl), regioregular, poly(3-hexylthiophene-2,5,-diyl), regiorandom), poly(thienylenevinylene) and derivatives thereof, and poly(isothianaphthene) and derivatives thereof, tetra-hydro-thiophene precursors and derivatives thereof, poly-phenylene-vinylene and derivatives organometallic polymers, polymers containing perylene units, poly(squaraines) and their derivatives, discotic liquid crystals polyfluorenes, polyfluorene copolymers, polyfluorene-based copolymers and blends, e.g. co-polymerized and/or blended with materials such as charge transporting (e.g. tri-phenyl-amines and derivatives) and/or light-absorbing compounds (e.g. fused thiophene rings and derivatives, generally hetero-atom ring compounds with or without substituents).

15. (Original) The method of claim 10 wherein the first or second solvent is an organic solvent.

16. (Previously Amended) The method of claim 15 wherein the first solvent is selected from the group of is selected from the group of acetone, chloroform, benzene, cyclohexane, dichloromethane, ethanol, diethyl ether, ethyl acetate, hexane, methanol, toluene, xylene, mixtures of two or more of these, and derivatives of one or more of these.

Claim 17 (Canceled)

18. (Original) The method of claim 15 wherein the first and second solvents are both chloroform (CHCl₃).

Claim 19 (Canceled)

20. (Previously Amended) A method for making a device, comprising:

placing a first solution containing a first organic material and a first solvent on a first substrate;

evaporating the first solvent from the first solution leaving a film of the first organic material on the substrate;

annealing the first film of the first organic material by exposing it to a vapor of a second solvent for a period of time sufficient to render at least an outermost portion of the film of the first organic material insoluble in the first or second solvent;

placing a second solution containing a second organic material and a second solvent on a second substrate;

disposing the first and second substrates in proximity to each other with the film of the first organic material and the second solution disposed between the first and second substrates;

wherein the first substrate is a nanostructured material having pores, channels, cavities, or tubes with diameters between about 1 nm and about 100 nm, with a pore density between about 10^{12} pores per square meter and about 10^{16} pores per square meter.

21. (Original) The method of claim 20, further comprising pressing the first and second substrates together.

22. (Original) The method of claim 20 wherein annealing the film of the first organic material by exposing it to a vapor of a second solvent occurs after the first and second substrates have been pressed together.

Claim 23 (canceled).

24. (Previously Amended) The method of claim 20 wherein the first organic material infiltrates the pores, channels, cavities, or tubes in the nanostructured material.